AHD31K（JK900A）User Manual

1.AHD31K（JK900A） Outside View

AHD31K（JK900A） outside structure view is as follows: (Fig.1)

Fig.1

2. Controller Installation Size

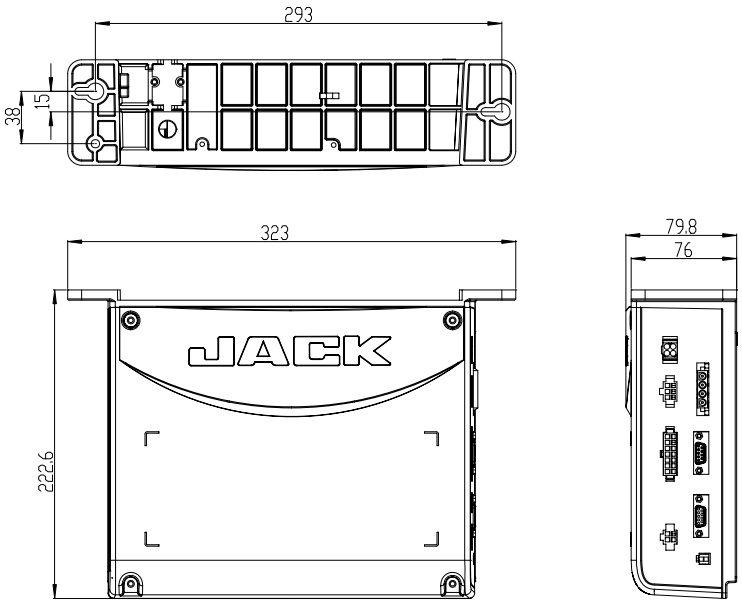


Fig.2

3. Operation Panel Introduction

The controller display screen is a 8-digit LED digital tube, which can show operation status, error code and parameter adjustment information.

LED display have four modes: no back tacking (Fig. 3-1)；start back tacking (Fig. 3-2)；end back tacking (Fig.3-3)； start and end back tacking (Fig.3-4).

Fig.3-1

Fig. 3-2

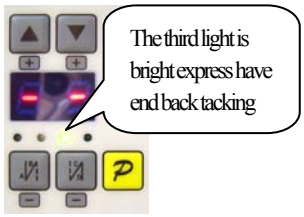


Fig.3-3

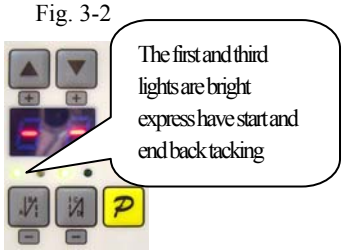


Fig. 3-4

Start/End Back Tracking setting

Start back tracking setting: Under operator mode (see Fig.6-1),press “ ” key once, the LED will display “——”and the first light is bright(see Fig. 6-2), it express start back tracking mode is selected. Press “ ” key again will cancel the start back tracking mode (see Fig. 4-3).

Fig 4-1

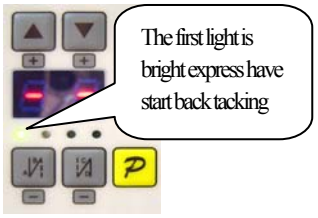


Fig.4-2

Fig.4-3

End back tracking setting:Under operator mode (see Fig.5-1), express “ ” key once ,the LED will display “——”and the third light is bright (see Fig.5-2),it express end back tracking mode is selected. Press “ ” key again will cancel the end back tracking mode

(see Fig. 5-3).

Fig.5-1

Fig.5-2

Fig.5-3

Start/end back tracking setting: Under operator mode (see Fig.6-1), press " " key and " " key,the LED will display "——"and the first and third lights are bright(see Fig.6-2),it express start/end back tracking mode is selected. Press" " and " " key again will cancel the start/end back tracking mode (see Fig. 6-3).

Fig.6-1

Fig. 6-2

Fig.6-3

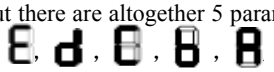
When there is a failure, the error code will flash. As is shown in the following figure, the error codes are 08（Fig. 7-1）and 11（Fig. 7-2）respectively.

Fig.7-1

Fig. 7-2

Temporary speed setting: During idle mode,The user can adjust temporary speed by key or key.Press key, Temporary speed can be increased Temporary speed(max. speed can be set to Level of A setting).Press key,The temporary speed can be decreased (minimum speed can be set to 200rpm）.The speed can be set default after resetting power.

4.Parameter Adjustment Instructions

There are three buttons under the digital tube, one is “P”, one is “+”, the other is“－”.Under status display, continue press “P” key, the parameter setting mode will start, will appear, signifying A parameter. Now: if press “+” and you can change parameter index,there are altogether 5 parameters: A, b, C, d, and E are displayed in a circle, which are shown as: they signify speed levels, up/correction needle positioning, number of forward/ backward fixed sewing, and solenoid output setting respectively. If press “－”you can change parameter index too，but there are altogether 5 parameters: E,d,C,b and A are displayed in a circle, which are shown as: 

Detailed setting shall be done as the following:

Speed Level Setting

Speed selection scope is 1-9, with 1 slowest and 9 fastest. Maximum speed is set by HMI and the operator cannot set it. Press button“P”once, LED will display A, shown as the following figure (Fig. 8)

Fig. 8

Press button “P”again to start speed setting, then press button “+”or“－” to choose speed levels, press each time, the speed will be one level faster or slower. After speed setting, press “P” to save and exit.

Up/Correction Needle Position Setting

Press “P”and press button “+”or press button “－” four times to choose LEB to display the letter “b”, as in the following figure: (Fig. 9)

Fig. 9

Press“P” to start up/correction needle position setting, press “+”or “－”to set the parameter, 0 signifies up needle position, 1 signifies correction needle position. After setting, press button “P” to save.

Setting number of pre-fixed sewing

After pressing button “P”, press button “+”two times or press button “－” three times, LED will display the letter “C”, as the following figure: (Fig. 10)

Fig.10

Press button “P” to start fixed sewing setting, and press “+”or “—” to set the number of fixed sewing. Number of fixed sewing setting range is 0~9, 0 signifies no fixed sewing set; 1-9 signifies number of fixed sewing. After setting, press button “P” to save.

Setting number of post-fixed sewing

After pressing button “P”, press button “+”three times or press button “—” two times. LED will display the letter “d”, as in the following figure (Fig. 11)

Fig.11

Press button “P” to start fixed sewing setting, and press “+”or “—” to set the number of fixed sewing. Number of fixed sewing setting range is 0—9, 0 signifies no fixed sewing set. After setting, press button “P”to save.

Second Solenoid Output Setting

After pressing button “P” press button press button “+”four times or press button “—” one time. LED will display E, as in the following figure: (Fig. 12)

Fig. 12

Press button“P” to start solenoid output setting, then press button “+”or “—” to adjust parameter setting. Parameter instructions are as follows:

0 – back tacking; 1 – thread wiping; 2 – presser foot lifting; after setting, press button “P” to save.

In the above operation, if there is no operation for some time (5 seconds), it will go back to stand-by status, with no changes saved.

When the machine head is lifted, but there is no action at the pedal, LED will flash all the time till the machine head is closed, and controller works in good order.

5.Definition of controller interface

Motor Power		
1	Earth	Grounding
2	Motor-A	Motor Phase A
3	Motor-B	Motor Phase B
4	Motor-C	Motor Phase C

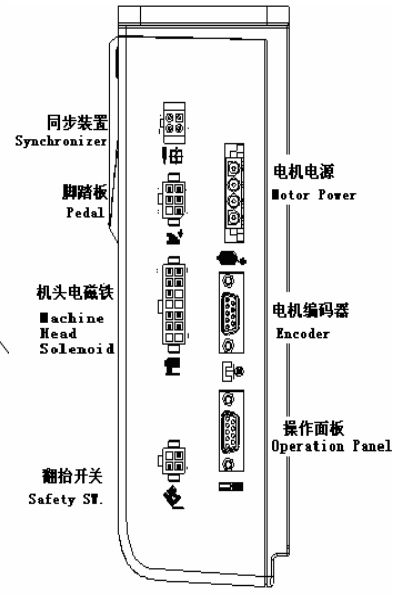
Safety SW.		
1	——	——
2	VDD(+32V)	+32V
3	——	——
4	DIN2	Safety Switch

Pedal		
1	Pedal	Pedal analog signal
2	GND	5V Ground
3	+5V	+5V
4	——	——
5	——	——
6	——	——

Operation Panel		
1	+5V HMI	+5V
2	DIP-CTRL	Direction Control
3	SCIRXD	Signal Receive
4	SCITXD	Signal Send
5	GND-HMI	+5V HMI GROUNDING
6	——	——
7	——	——
8	——	——
9	——	——

Encoder		
1	VCC	+5V
2	ECNA+	Orthogonal encoder A
3	ECNB+	Orthogonal encoder B
4	UP+	Needle Up Stop Position Signal
5	GND	5V GND
6	HALLC	HALL-C
7	HALLA	HALL-A
8	HALLB	HALL-B
9	DN+	Needle Down Stop Position Signal

Machine Head Solenoid		
1	VDD(+32V)	+32V
2	——	——
3	——	——
4	LED(+32V)	LAMP(+32V)
5	VDD(+32V)	VDD(+32V)
6	VDD(+32V)	VDD(+32V)
7	——	——
8	JX	Trimming Solenoid
9	——	——
10	Earth	Grounding
11	LED(-)	LAMP(-)
12	DIN1	Back Tacking Sewing Switch
13	DF	Back Tacking/Wiping Sewing solenoid Presser Foot Lifting Solenoid
14	——	——



★ **The drive ability of the LED jack：**

It can drive five LED diode, which the rated current is 20mA and the rated voltage is 3V.

Recommendatory LED diode parameter as follows:

VF：Min. = 3.0V，Max. = 3.6V (test condition IF = 20mA);

Peak Forward Current：Max. = 80mA;

Continuous Forward Current ：Max. = 35mA

6.Recovery processing and maintenance

error code	meaning	solution
01	hardware overflow	Turn off the system power, restart after 30 seconds, if the controller still does not work, please replace it and inform the manufacturer.
02	software overflow	
03	system under-voltage	Disconnect the controller power and check if the input voltage is too low (lower than 176V). If yes, please restart the controller when the normal voltage is resumed. If the controller still does not work when the voltage is at normal level, please replace the controller and inform the manufacturer.
04	over-voltage when the machine is off	Disconnect the controller power and check if the input voltage is too high (higher than 264V). If yes, please restart the controller when the normal voltage is resumed. If the controller still does not work when the voltage is at normal level, please replace the controller and inform the manufacturer.
05	over-voltage in operation	
06	solenoid circuit failure	Turn off the system power, check if the solenoid is connected correctly and if it is loose or damaged. If yes, replace it in time. Restart the system upon making sure everything is in good order. If it still does not work, seek technical support.
07	electrical current checking circuit failure	Turn off the system power, restart after 30 seconds to see if it works well. If not, try several more times. If such failure happens frequently, seek technical support.
08	locked motor roller	Disconnect the controller power, check if the motor input plug is off, loose or damaged, or if there is something twined on the machine head. After checking and correction, if the system still does not work, please replace the controller and inform the manufacturer.
09	brake circuit failure	Turn off the system power, check if the white brake resistance plug on the power board is loose or dropped off, fasten it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
10	HMI communication failure	Check if the connecting line between control panel and controller is off, loose or broken, restore it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
11	machine head needle positioning failure	Check if the connection line between machine head synchronizer and controller is loose or not, restore it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.

12	motor original angle checking failure	Please try 2 to 3 more times after power down, if it still does not work, please replace the controller and inform the manufacturer.
13	Motor HALL failure	Turn off the system power, check if the motor sensor plug is loose or dropped off, restore it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
14	DSP Read/Write EEPROM failure	Try another time after power down, if it still does not work, please replace the controller and inform the manufacturer.
15	Motor over-speed protection	Turn off the system power, turn on again in 30 seconds to see if it works. If not, try several more times, if such failure happens frequently, please change the controller and inform the manufacturer.
16	Motor reversion	Turn off the system power, restart the system after 30 seconds, if it still does not work, please replace the controller and inform the manufacturer.
17	HMI51 Read/Write EEPROM failure	Turn off the system power, restart the system after 30 seconds, if it still does not work, please replace the controller and inform the manufacturer.
18	Motor overload	Turn off the system power, restart the system after 30 seconds, if it still does not work, please replace the controller and inform the manufacturer.
19	Lack of oil alarm	Add oil to the needle rod, and set the P22 parameter at 4000, resume the working time after the last oil adding; or you can press button P to close the alarm and continue to use.

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版本 B